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(19)(CA) **CANADIAN PATENT** (12)

(54) Wooden Cue and Manufacturing Method Thereof

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(73) Same as inventor

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WOODEN CUE AND MANUFACTURING METHOD THEREOF

A manufacturing method for a wooden cue includes the steps of (a) preparing a wooden cue blank, (b) wrapping the cue blank in a layer of covering material, (c) pressing and heat-drying the wrapped cue blank, and (d) attaching thereto two end airtight and watertight stoppers. A cue so manufactured can be warpage free since the wooden cue body is isolated from the atmosphere.

WOODEN CUE AND MANUFACTURING METHOD THEREOF

BACKGROUND OF THE INVENTION

The present invention relates to a wooden cue and also to a manufacturing method thereof.

Cues different in size and/or diameter for playing billiards or snooker can be made of wood, aluminium or fiber-reinforced material. Wooden cues, however, are always most popular due to cost consideration and/or the feeling produced by the wooden material. Nevertheless, a wooden cue gets easily warped after a period of use, causing the fact that the player cannot control the cue and in turn the ball at his own will. It is found by the Applicant that the wooden cue gets warped because of the fact that the moisture in the atmosphere and in the wooden material of the cue transmits therebetween frequently.

It is therfore attempted by the Applicant to deal with the problem encountered by the prior art.

SUMMARY OF THE INVENTION

It is therefore an object of the present invention to provide a wooden cue capable of perfectly maintaining its shape and straightness.

It is further an object of the present invention to provide a method for manufacturing a straightness-maintaining wooden cue.

According to the present invention, a method for manufacturing a wooden cue includes the steps of (a) preparing a cue blank, (b) wrapping the cue blank in a layer of covering material, (c) pressing and heat-drying the wrapped cue blank, and (d) attaching thereto two end airtight and watertight stoppers. A wooden cue of the present invention includes a wooden cue body, a layer of covering material wrapping therein the cue body for isolating the cue body from the atmosphere and two airtight and watertight stoppers respectively secured to the two ends of the cue body.

The present invention may best be understood through the following description with reference to the accompanying drawings, in which:

BRIEF DESCRIPTION OF THE DRAWING

Fig. 1 shows a step of preparing a cue blank according to a manufacturing method of the present invention;

Fig. 2 shows a cue blank in Fig. 1 covered with an adhesive;

Fig. 3 shows a step of wrapping a cue blank in Fig. 1 in a resin-impregnated fiber cloth;

Fig. 4 is an enlarged view showing the circled portion in Fig. 3;

Fig. 5 is a perspective view showing a mold half for pressing and heat-drying a fiber-cloth wrapped cue blank;

Figs. 6 & 7 are partly sectional views respectively showing two end stoppers for a wrapped cue blank;

Figs. 8 & 9 are partly sectional views respectively showing two matching surfaces of an intermediate severed portion of a wrapped cue blank; and

Figs. 10 & 11 are partly sectional views respectively showing further embodiments of two matching surfaces of an intermediate severed portion of a wrapped cue blank.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

As shown in Figs. 1-7, a method of manufacturing a wooden cue according to the present invention includes the steps of (a) preparing a wooden cue blank 3 having a circumferential size having any a particular diameter smaller than a corresponding one of that of a finished wooden cue by 0.4mm - 2.4mm, (b) applying a layer of AB glue on cue blank 3, as shown in Fig. 2, (c) causing an epoxy-impregnated fiber cloth 4 to wrap therein glue-applied cue blank 3, (d) pressing and heat-drying the wrapped cue blank (3, 4) between two mold halves 50 in order to have a circumferential size corresponding to that of the finished cue, (e) cutting at both ends thereof the pressed and heat-dried wrapped blank (3, 4) to have a

desired length, and (f) attaching respectively at the butt and tip ends of the pressed and heat-dried wrapped blank (3, 4) two airtight and watertight stoppers 5, 6 so that a cue so manufactured will be protected from being invaded by the mositure in the atmosphere and is reinforced in strength.

The cue can be an integral one or constituted by a plurality of pieces, stopper 5 can include a metal ring 1 matching against the butt end, a nylon insert 2 received in the butt end and having a threaded hole 21, and a rubber or plastic end piece 5 fastened by a bolt 22 to ring 1 and insert 2 both attached to the butt end by a waterproof adhesive. Certainly, insert 2 can alternatively be made of metal or other material. Stopper 7 can be made of leather and attached to the tip end by a waterproof adhesive.

As shown in Figs. 8 & 9, if cue body 3 has an intermediate severed portion, two matching surfaces of the severed portion can be designed to respectively include metal rings 7, 10 matching against outer portions thereof and inserts 8, 11 which are respectively received therein, tightly contact with rings 7, 10 respectively and respectively have threaded holes 81, 12 capable of respectively receiving therein two opposite halves of a bolt 9 capable of bolting together the two matching

surfaces with the bolt tip 91 received in a corresponding room 13 of threaded hole 12. Certainly, rings 7, 10 can be metal and inserts 8, 11 can be made of nylon. Also, rings 7, 10 and inserts 8, 11 can be secured to and/or in the two matching surfaces by a waterproof adhesive.

Alternatively, as shown in Figs. 10 & 11, rings and inserts for the two matching surfaces can be integrally formed pieces 30, 31 which are capable of being secured to the matching surfaces respectively by a waterproof adhesive also and can be made of metal, nylon or any other suitable material.

The experiments conducted over years by the Applicant have shown the fact that the present invention enables the cue to achieve the contemplated object without failure.

THE EMOBDIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A method for manufacturing a wooden cue comprising the following steps of:

(a) preparing a cue blank having a circumferential size smaller than that of said wooden cue;

(b) wrapping said cue blank in a layer of covering material;

(c) pressing and heat-drying said wrapped cue blank in order to have a circumferential size corresponding to that of said wooden cue; and

(d) attaching respectively at two ends of said pressed and heat-dried wrapped blank two airtight and watertight stoppers.

2. A method according to Claim 1 wherein said cue blank is longer than said wooden cue and said process further includes before said step (d) a step of cutting said pressed and heat-dried wrapped blank to have a desired length.

3. A method according to Claim 1 wherein any a particular diameter of said circumferential size in said step (a) is smaller than a corresponding one of that of said wooden cue by 0.4mm - 2.4mm.

4. A method according to Claim 1 wherein said covering layer is adhered to said cue blank by an adhesive.

5. A method according to Claim 4 wherein said adhesive is an AB glue.

6. A method according to Claim 1 wherein said covering material is a resin-impregnated fiber cloth.

7. A method according to Claim 6 wherein said cloth is an epoxy-impregnated graphite fiber cloth.

8. A wooden cue comprising:

a wooden cue body having a butt end and a tip end;

a layer of covering material wrapping therein said cue body for isolating said cue body from the atmosphere; and

two airtight and watertight stoppers respectively secured to said butt and tip ends.

9. A wooden cue according to Claim 8 wherein said stopper secured to said butt end includes:

a ring matched against said covering layer-wrapped butt end;

an insert received in said butt end; and

an end piece matched against said ring and said insert.

10. A wooden cue according to Claim 8 wherein said cue body has an intermediate severed portion which includes a bolt and two matching surfaces each of which includes:

a ring matched against a relevant said covering

layer-wrapped matching surface; and

an insert received in said relevant matching surface, tightly contacting with said ring and having a threaded hole capable of partly receiving therein said bolt capable of bolting together said matching surfaces.

11. A wooden cue according to Claim 10 wherein said ring and said insert are integrally formed together.

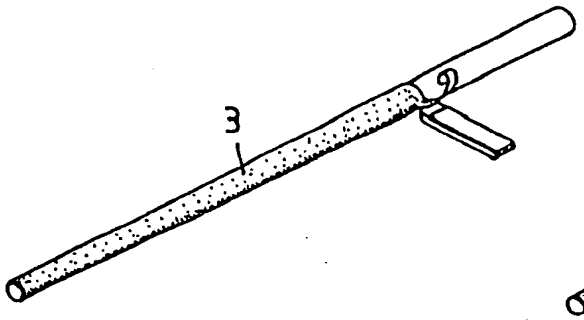

FIG. 1

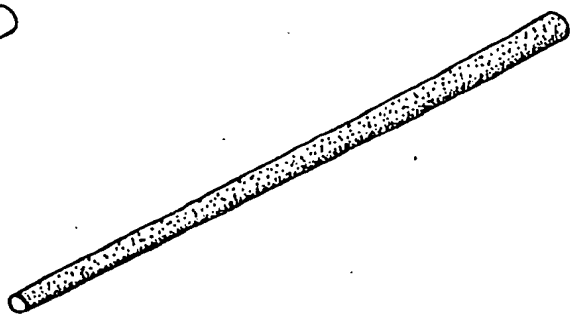

FIG. 2

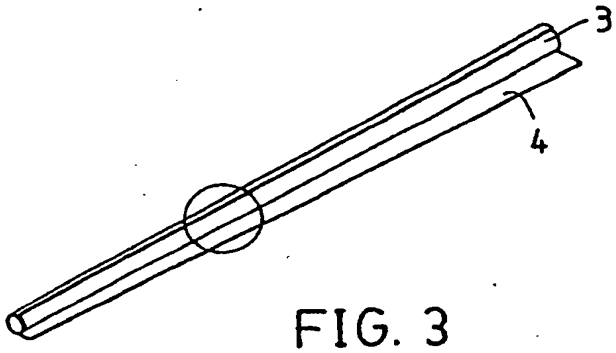

FIG. 3

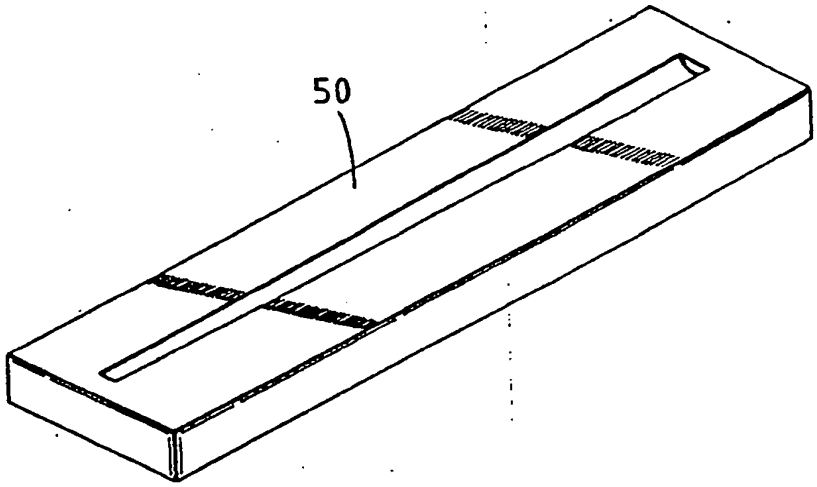

FIG. 4

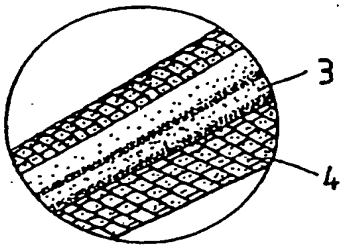

FIG. 5

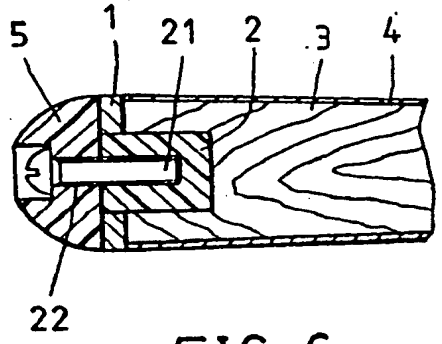

FIG. 6

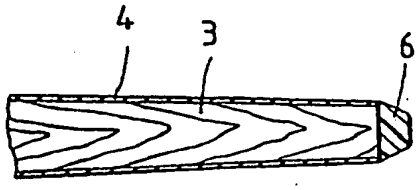

FIG. 7

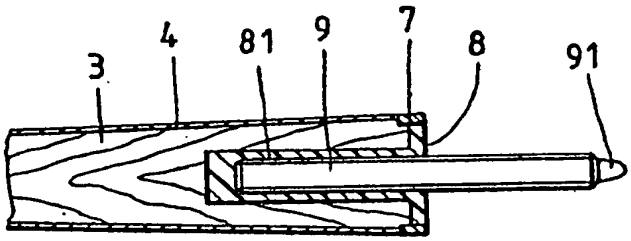

FIG. 8

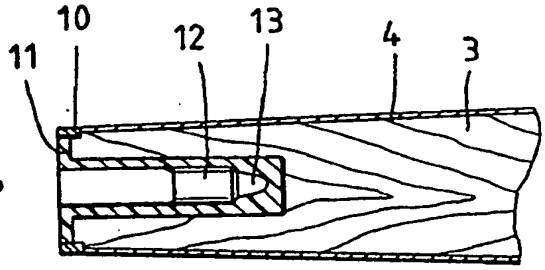

FIG. 9

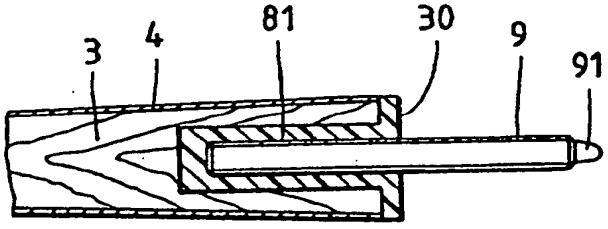

FIG. 10

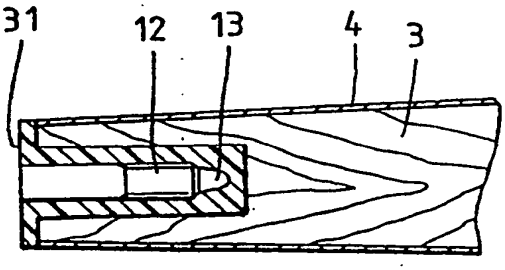

FIG. 11